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STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

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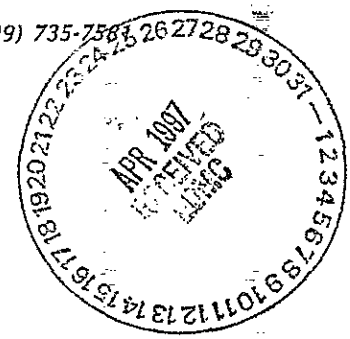

April 17, 1997

Mr. James E. Rasmussen
U.S. Department of Energy
P.O. Box 550, MSIN: A5-15
Richland, WA 99352

Dear Mr. Rasmussen:

This letter transmits the Washington State Department of Ecology's (Ecology) supplemental Notice of Deficiency (NOD) comments regarding the groundwater section of the *Nonradioactive Dangerous Waste Landfill Closure/Postclosure Plan, August 30, 1990, DOE/RL-90-17.* 10580

The NOD comments were communicated to the U.S. Department of Energy on January 10, 1994, with the exception of review on the groundwater portion of the report. The delay to complete the NOD has occurred in view of administrative changes of personnel and the priority order set by the Hanford Resource Conservation and Recovery Act Permit Modification Table.

Please communicate your response to these comments by October 20, 1997. At this stage, Ecology is keen to finalize the Closure/Postclosure Plan strategy of this unit based on the groundwater assessment.

If you have any questions regarding the above, please contact me at (509) 736-5704. Thank you for your cooperation.

Sincerely,

Shri Mohan

Shri Mohan
Nuclear Waste Program

SM:sb
Enclosure

cc w/enclosure: Brian Foley, USDOE
Ellen Mattlin, USDOE
Gregory Mitchem, BHI
Administrative Record

DEPARTMENT OF ECOLOGY
NOTICE OF DEFICIENCY
FOR
THE NONRADIOACTIVE DANGEROUS WASTE LANDFILL
CLOSURE/POST CLOSURE PLAN

#	Page/Line	Comment
1.	General Comment:	The groundwater monitoring plan included in the Nonradioactive Dangerous Waste Landfill (NRDWL) closure/post closure plan, (C/PC) is six years out of date and deficient. New information with respect to groundwater analyses, monitoring well installation data, and groundwater flow directions have been collected NRDWL and the SWL in the interim, and must be included in the revised plan before it can be evaluated by Ecology. In addition, a large amount of information has been collected in various locations in the 200 Areas. This data casts a lot of doubt on accepted ideas regarding the hydrology of the Ringold Formation. This new data needs to be reviewed for applicability toward the NRDWL and the SWL, and discussed in the new C/PC. Since the revisions to the monitoring section are extensive, Ecology suggests the 1993 Ground Water Monitoring Plan (WHC-SD-EN-AP-026, Rev. 0) be used as a starting point and updated per the requirements of this notice of deficiency. The delineation and separation of Solid Waste Landfill (SWL) and NRDWL groundwater flow systems is arbitrary and completely unrelated to the movement of groundwater. The two facilities are one waste management unit and have essentially the same point of compliance. The revised groundwater monitoring section of the NRDWL C/PC must incorporate all relevant information from the SWL groundwater and vadose zone monitoring plans. All information presented in Appendices to the old C/PC must be updated and included in the new C/PC. Since the 1993 monitoring plan for the NRDWL has more recent data and information regarding the groundwater flow regime, only two comments will be made with respect to the original groundwater monitoring section of the C/PC. All other comments refer to the WHC 1993 monitoring plan.
2.	5-1/10-5-2/5	C/PC groundwater monitoring section. This section states that an interim status groundwater monitoring plan was developed to comply with the requirements of 40 CFR 265, Subpart F. This is true for the initiation of an interim-status groundwater monitoring program at NRDWL; however, post closure groundwater monitoring must comply with the requirements of WAC 173-303-645, WAC 173-303-665, and 40 CFR 264, Subpart F. *Requirement:* Rewrite this section to explain the need for post closure groundwater monitoring and include references to the correct regulations.
	Appendices 5A and 5B	The C/PC contains two appendices of groundwater data. Appendix 5A consists form, which makes it next to useless. Groundwater data in the revised C/PC would be of greater utility if presented as trend plots. *Requirement*: All supporting ground water and vadose zone data must bepresented as trend plots, with no more than five constituents per well.

1993 Ground Water Monitoring Plan Comments

3. 10 Section 2.2.2: The writeup on the geology of the NRDWL is lacking in detailed cross-sections. As we all know, a picture is worth a thousand words. There also appears to be a lot of boilerplate on geology and hydrogeology in this document. A little less of this boilerplate, and a greater reliance on newer data would improve this and other hydrogeological documents considerably.

Requirement: Include at least three detailed cross-sections of the geology beneath and near the SWL and NRDWL facilities. Additional information on the hydrogeology of the Ringold Formation obtained from the drilling of the deep characterization well at 216- A-37-1 must be presented.

4. 13 The small print and incredibly poor reproduction quality of Figure 8 has bested superior eyesight of this incredibly fit and physiologically ageless state beaurocrat. I do not make enough money to subject myself to this kind of suffering.

Requirement: Make Figure 8 legible.

5. 40 Section 3.5.1.1: Geologic sampling should be collected using either a split-spoon sampling device or a core barrel. All sampling procedures must also conform to the requirements of WAC 173-304.

6. 41 Section 3.5.2.1: The decision on whether to conduct an aquifer test will rest with Ecology, not on a DOE-RL guidance on purgewater. A detailed description of the aquifer test must be presented in the revised closure plan for evaluation and approval by Ecology.

7. 41 Section 3.5.2.3: The determination of groundwater flow paths must include the placement of flowmeters in the monitoring wells. Based on the explanation on Page 22, for the apparent deviation in groundwater flow directions between contaminant plumes and the flow paths as defined by the water table, nonroutine water level measurements will not add greatly to an understanding of groundwater flow in the vicinity of NRDWL and the Solid Waste Landfill. The question of preferential pathways of flow in the Ringold Formation has cropped up many times before. Data collected in the 200 West and 200 East Areas has shown heterogeneity with many aspects within the Ringold flow regime. The recent flow meter data collected from the new 216-A-37-1 characterization monitoring well has detected three orders of magnitude difference in flow velocity between the upper five feet of the aquifer and the zone 15 feet below. The direction of flow also changed, with a difference of over 90 degrees between the two zones.

8. 42 Section 3.6.1: Sampling does not necessarily entail three casing volumes of purged. Excellent samples have been collected through the use of low flow sampling techniques. These must be considered.

9. 47 Section 4.2.2: The rate of movement of groundwater in the vicinity of NRDWL must be determined from aquifer testing methods approved by Ecology. These methods include pump tests and the installation of flowmeters. The use of slug tests will not be looked upon favorably by Ecology. Pump test procedures must be discussed with Ecology staff prior to initiation of the test.